
Coding Guide and Instructions for IRR Inventory

(As of 10-21-2004)

FIELDS 1-3, Region, Agency, and Reservation, Display Only

Every section in RIFDS is associated to a region, agency, and reservation. All three codes taken together identify an inventory location. In RIFDS, the inventory location is always specified by selecting it from the Navigation Tree on the Main Form. RIFDS users are given row level access permissions that permit data to be retrieved for specific reservations. Permission may be given for any combination of reservations, but most commonly, permission is given for one reservation, agency, or region. RIFDS will not display section data for reservations a user is not configured to see.

FIELD 4, Route Number, Display Only

All routes are identified with a BIA route number. This is a numeric code of exactly four digits left-padded with zeros when necessary. In RIFDS, routes are created (and deleted) on the new route form.

BIA route numbers are used on sign posts, atlas maps, plans, programs, reports, and other bureau records requiring similar identification.

A spur to an existing route is always assigned its own route number.

Routes must be of a single class (except for overlap sections). RIFDS enforces this requirement when a route is submitted to the region.

FIELD 5, Section Number, Display Only

The section number identifies the section in a route. Sections are usually numbered 10, 20, 30 and so on in one of the orders that the sections would be traversed during travel. As the need arises for new sections, these may be inserted in the correct locations. In RIFDS, new sections are created on the new section form. (Process sections are deleted on the section detail form, and official sections are deleted using the resection request form.)

If it is necessary to change section numbers, RIFDS provides this capability through the resection request form. However, when a section is renumbered, the system does not remember a linkage to the old number. This means that trend analyses can only be performed on sections that have not been renumbered.

A section break occurs when it is necessary to accurately report the data. In particular, a section break is required whenever any of the following occur:

- The route crosses a state boundary.
- The route crosses a county boundary.
- The route crosses a reservation boundary.
- The route a congressional district boundary
- A bridge begins.
- A bridge ends.
- The surface type changes.
- The standard to which the road was constructed changes.
- There is a significant change to the condition of the road.

The main span of a bridge together with all its approach spans is a single section.

FIELD 6, Functional Class Code

This is the BIA functional classification of the route. Except for overlap sections, all sections in a route must have the same class. Functional classification assignments for new routes and changes in the functional classification for existing routes must be justified in the reservation long-range transportation plan. Relevant pages must be copied to a PDF or JPEG file and attached to the submission at the route

level. Functional classification means an analysis of a specific transportation facility taking into account current and future traffic generators, and their relationship to connecting or adjacent BIA, state, county, Federal, and/or local roads and other intermodal facilities. Functional Classification is used to delineate the difference between the various road and/or intermodal transportation facility standards eligible for funding under the IRR program. As part of the IRR system management, all transportation facilities included on or added to the IRR inventory must be classified according to the following functional classifications.

Class	Description
1	Major arterial roads providing an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more than two lanes of traffic.
2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or inter-state service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
3	Streets that are located within communities serving residential areas.
4	Rural major collector road is collector to rural local roads.
5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.
6	City minor arterial streets that are located within communities, and serve as access to major arterials.
7	City collector streets that are located within communities and serve as collectors to the city local streets.
8	This class encompasses all non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snowmobiles, all terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.
9	This classification encompasses other transportation facilities such as public parking facilities adjacent to IRR routes and scenic byways, rest areas, and other scenic pullouts, ferry boat terminals, and transit terminals.
10	This classification encompasses airstrips that are within the boundaries of the IRR system grid and are open to the public. These airstrips are included for inventory and maintenance purposes only.
11	This classification indicates an overlapping or previously inventoried section or sections of a route and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification purposes only.

FIELD 7, Length of Section

This field is the length, or for proposed road estimated length, of a road section to the nearest tenth of a mile.

FIELD 8, Bridge Number

For proposed or existing BIA owned bridges enter the 4 character BIA identifier. Do not pad the 4-character number at all; just enter the four characters. Observe the new BIA DOT convention of formatting bridge numbers for proposed bridges (i.e. 999A) differently from existing bridges (i.e. A999). RIFDS enforces that the bridge number must be unique. This means that in some regions where a single bridge number is used for several proposed bridges, new bridge numbers will be required for all bridges using the old number before any of the bridge records can be updated.

For all other bridges enter the NBIS owner identifier of the structure. See the Coding Instructions for the *Structure Inventory and Appraisal of Bureau of Indian Affairs Bridges*, Field 32A "Bridge Number" for more information.

Definition of a bridge—A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller continuous opening.

FIELD 9, Bridge Condition

For structures that are inventoried in the *Structure Inventory and Appraisal* (SI&A, AKA Bridge Inventory), report the SI&A bridge condition code translated into a number from 0 to 7 according to the following table. For all other existing or proposed bridges, use code 8 or 9.

Bridge Inventory Code	IRR Inventory Code	Bridge Condition
33 or 34	0	Widen existing bridge
31	1	Replacement of bridge because of condition
32	2	Replacement of bridge because of relocation of road
-	3	Construction of new bridge
-	4	Construction of pedestrian over or under crossing
38	5	Other structure work
-	6	Strengthening
35, 36 or 37	7	Rehabilitation
-	8	Non-existing Bridge but one is needed and/or proposed
-	9	Bridge excellent - no construction required

FIELD 10, Length of Bridge

For existing and proposed bridges only, enter the actual length, in feet to the nearest foot. For existing bridges, this value should agree with, Bridge Inspection and Inventory data. For proposed bridges, this length should be a conservative (i.e. short) estimate of the length required, and is subject to review. Unreasonably long estimates can delay acceptance of submitted data indefinitely.

FIELD 11, County

Enter the code for the county of the state in which the section of the route is located. The interface includes a button that provides a list of counties in each state providing the name and code for each.

FIELD 12, Congressional District

Enter the two-digit number indicating the congressional district in which the section of road is located. This number is available from the current congressional directory. Code two digit numbers with a leading zero.

FIELD 13, State

Enter the code for the state in which the section of the route is located.

FIELD 14, Ownership

Enter the code that identifies the entity that owns the ROW and is responsible for the maintenance of the section of road being inventoried.

Code	Ownership
1	BIA including offices in the BIA
2	Tribe
3	State
4	Urban (includes all Federal-aid urban and non-federal-aid urban or

	municipal forces).
5	County and Township.
7	Other Federal Government departments and/or agencies.
8	Other (includes Petroleum & Mining, utility company, or any other agencies, groups, or enterprises not included in one of the others)

Maintenance responsibility does not necessarily rest with the agency, group, or enterprise that is actually performing the work. Before completing this field, research may be necessary to determine the actual owner claimed for the specific section of road.

FIELD 15, Construction Need

All existing or proposed transportation facilities in the IRR must have a construction need (CN) which is used in the cost to construct calculations. These transportation facilities are assigned a CN by the tribe during the long-range transportation planning and inventory update process using certain guidelines which are: Ownership or responsibility of the facility, whether it is within or provides access to reservations, groups,, villages and communities in which the majority of the residents are Indian, and whether it is vital to economic development of Indian Tribes. As part of the IRR inventory management, all facilities included on or added to the IRR must be designated a CN which are defined as follows.

CN	Construction Need
0	Transportation facilities which have been improved to their acceptable standard or projects/facilities proposed to receive construction funds on an IRR TIP are not eligible for future inclusion in the calculation of the CTC portion of the formula for a period of 5 years thereafter.
1	Existing BIA Roads needing improvement.
2	Construction need other than BIA roads needing improvement.
3	Substandard or other roads for which no improvements are planned (maintenance only).
4	Roads that do not currently exist and need to be constructed, Proposed roads.

FIELD 16, Terrain

For existing and proposed class 2 or 4 roads only, enter the code that best represents the most significant or predominate terrain related to the section of road being inventoried. Selection of this code is very important since class, terrain, and future ADT determine the adequacy design standard.

Code	Description
1	Flat terrain is that condition where highway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense.
2	Rolling terrain is that condition where the natural slopes consistently, rise above and fall below the highway grade line by about 10 feet and where occasional steep slopes offer some restriction to normal highway horizontal and vertical alignment.
3	Mountainous terrain is that condition where the longitudinal and transverse changes in the elevation of the ground with respect to the highway are abrupt and where the roadbed requires frequent benching or side hill excavation.

FIELD 17, Roadbed Condition

For existing roads only, enter the code that best describes of the roadbed condition of the section of road being inventoried.

Code	Foundation Condition
0	Proposed Road
1	Primitive Trail
2	Bladed unimproved road, poor drainage, poor alignment
3	Minimum built-up roadbed (shallow cuts and fills) with inadequate drainage and alignment that generally follows existing ground

4	A designed and constructed roadbed with some drainage and alignment improvements required
5	A roadbed constructed to the adequate standards with good horizontal and vertical alignment and proper drainage
6	A roadbed constructed to adequate standards - curd and gutter on one side
7	A roadbed constructed to adequate standards - curd and gutter on both sides

In this evaluation, *roadbed* is defined as the roadbed under the base and surface (wearing) courses. The condition is evaluated according to visual or other evidence that indicates poor support for the roadway surface structure (base and surface course) such as the following:

- Surface and base failure with poor sub-grade material evident in shoulders and side slopes.
- Side Slopes that are too steep or seriously gullied.
- Subsidence of a section of road below adjacent section.
- Grade evaluation is insufficient to prevent ground water from destroying surface stability or provide for adequate snow removal.

FIELD 18, Wearing Surface Condition/SCI

For existing roads only, if the surface is improved (gravel or paved) then consult Appendix A and enter the numeral value to the nearest tenth that provides the best rating of the wearing surface condition. If the road has no wearing surface, i.e. is unimproved, then enter zero.

Rating items that are found in a few isolated locations only should not contribute to the wearing surface rating, because small isolated locations of distress are considered normal maintenance. Rather, the wearing surface rating should be objectively indicative of the majority of the surface.

FIELD 19, Surface Width

For all existing and proposed roads, enter the actual (average) width, in feet to the nearest 1 foot, of the existing driving surfaces within shoulder striping. Do not include shoulder width. In the case of earth and gravel roads the surface width will be that dimension between the point of intersection of the in-slopes (side slopes) and the top of the surface of the roadway.

FIELD 20, Surface Type

For all existing and proposed roads, enter the code which best describes the existing surface type (wearing course) for the section being inventoried.

Code	Surface Type
0	Proposed roads not open to traffic.
1	Primitive (virtually no maintenance) two track Jeep or Wagon Trail
2	Earth Road
3	Gravel Surface
4	A bituminous material less than 2" thick (including chip seal

	over asphalt penetration).
5	Bituminous material 2" thick or more.
6	Concrete.

FIELD 21, Federal Aid Funding Category

Enter the code that represents the routes federal aid eligibility.

Code	Federal Aid Funding Category
1	Local roads-formerly Other
2	STP, Surface Transportation Program-formerly FAS
3	NHS, National Highway System-formerly FAP
4	IM, Interstate maintenance-formerly FAI
5	Obsolete, do not use this code-formerly FAU (FAU now combined with STP)

FIELD 22, ROW Status

Enter the numerical code that indicates if right-of-way has been acquired and recorded. Generally, the State & Federal Aid roads will have Code 3. *Remember a construction easement does not change the owner or status of ROW, in itself.*

Code	ROW Status
0	No ROW or easement or Tribal Resolution acquired yet
1	Tribal Resolution/Consent
2	Easement or ROW acquired but not recorded.
3	Recorded Easement or ROW.
4	Statutory Right of Way Obtained

FIELD 23, ROW Width

Enter the prevailing width of the right of way to the nearest foot. For example, if the ROW is set up as 50 feet left and right of centerline with an occasional change from 50, the enter 100.

If no easement has been obtained (Field 49a, ROW Status is coded 0 or 1), then enter the estimated or planned ROW width here.

If an easement has been obtained (Field 49a, ROW Status is coded 2, 3 or 4), then enter a positive ROW width here.

FIELD 24, CTC Percent Eligible

This field will be calculated based on the combination of construction need, ownership and federal aid funding category. If a value other than the default is required in accordance with 25 C.F.R 170, appendix C to subpart C, question 10(3) then the statement of inability to participate in funding will be required for the update.

FIELD 25, Percent of Additional Incidental Cost Required

The incidental construction items found below may or may not be associated with any particular project. In the calculation of CTC, 75% of the incidental cost required is based on the roadbed condition. The other 25% is based on the items below. Add the percentage required (from 0% to 25%) based on the Regional recommendation with verification. If a number greater than 0 is provided then verification documentation must be provided based on an Engineers Estimate or Engineering Analysis with the update as an attachment. If there are no additional items use zero as the default.

Percent of total incidental construction costs	Additional incidental construction items.
1	Fencing
9	Landscaping
9	Structural Concrete

3	Traffic Signals
3	Utilities

FIELD 26, Shoulder Width

For all existing and proposed roads, enter the average width of left and right shoulders. Enter zero if there are no shoulders. If shoulder width varies significantly because of erosion or other deterioration, then use the width predominate for each shoulder in calculating the average.

FIELD 27, Shoulder Type

For all existing and proposed roads where the shoulder width is not zero, enter the code that indicates the existing shoulder type.

Code	Description
1	Earth shoulder (with or w/o turf)
2	Stabilized shoulder Gravel, asphalt treatment, etc.
3	Paved shoulder
4	Curb (Urban type)

FIELD 28, Existing ADT

This field is optional. If an actual count is available with documentation then enter the adt after all required adjustments have been applied. If a value is not entered then the default for that functional classification will be provided by RIFDS.

Whenever the ADT is changed or entered, an ADT backup document must be attached to the section.

class	Default ADT
1	NA must exist
2	100
3	25
4	50
5	50
6	50
7	50
8	20
9	NA
10	NA
11	NA

FIELD 29, ADT Year

Enter the last two digits of the calendar year in which the Existing ADT was estimated or obtained¹.

FIELD 30, % Trucks

Enter two digits representing the current percent of total annual traffic, which would be classed, as trucks. See the boxed text for an explanation. It is expected that the percent of trucks will remain constant. However, if there is an anticipated change in the percent of truck traffic annually, encode the figure that would best reflect overall percent of trucks before the next expected update.

Vehicles of different sizes and weights have different operating

¹ The next version of RIFDS will convert two-digit years to four digits and collect four digits thereafter.

characteristics, which must be considered in highway design. Besides being heavier and causing more damage, trucks generally are slower and occupy more roadway space and consequently impose a greater traffic effect on the highway than passenger vehicles do. The overall effect on traffic operation of one truck is often equivalent to several passenger cars. The number of equivalent passenger cars depending upon the gradient and the passing sight distance available. Thus, the larger the proportion of trucks in a traffic stream, the greater the traffic load and the highway capacity required.

For uninterrupted traffic flow, as typically found in rural areas, the various sizes and weights of vehicles as they affect traffic operation can be grouped into two general classes:

1. Passenger cars--all passenger cars including light delivery trucks.
2. Trucks--all buses, single-unit trucks, and truck combinations except the light delivery trucks.

A light delivery truck is a single-unit truck, such as a panel or pickup, with size and operating characteristics similar to those of a passenger car and commonly used for short-haul, light delivery service.

Vehicles in the truck class are normally those having 9,000 lb. or greater gross vehicle weight (GHV) rating of the manufacturer and vehicles having dual tires on the rear axle. Recreational vehicles or passenger cars towing trailers can be included in either class depending on their size and operating characteristics.

FIELD 31, Owner Number/Identification

If the road is not owned by the BIA (ownership <> 1) then enter the number assigned by the non-BIA owner of the road section, e.g., the US, state, or county route number.

Enter the number right justified without leading zeros.

FIELD 32, Roadway Width, Display Only

The computer will calculate this value. It is always the surface width plus two shoulder widths.

FIELD 33, ADT EST Year + 20 (FADT), Display Only

This field is also referred to as the *Future ADT (FADT)*. Either the system calculates this value from the existing ADT or it uses a default value based on class and future surface type. The system always uses the calculated value when deriving construction costs, vehicle miles traveled, and the adequacy design standard. The following formula is used whenever the existing ADT is not blank.

The formula represents 2% growth compounded annually for a 20 year period.

The following table is used whenever the existing ADT is BLANK

class	Default Future ADT
1	NA must exist
2	149
3	37
4	74
5	74
6	74
7	74
8	30
9	NA
10	NA
11	NA

FIELD 34, Adequacy Design Standard, Display Only

The system calculates the adequacy design standard (ADS) from the class, terrain, and future ADT. The ADS, prescribing minimum standards for such things as surface type, shoulder width, maximum grades, speeds, passing sight distance, and others, effects the cost to construct calculation in many places. All the adequacy design standards are documented in Appendix B.

FIELD 35, Future Surface Type, Display Only

The system calculates the future surface type based on functional classification and future ADT below are the possible future surface types. Refer to Appendix D for documentation of the Future Surface Type Calculation.

FIELDS 36-40, Five Adjusted Construction Costs, Display Only

These fields display the adjusted cost estimates (\$1,000/mile) for four categories of construction cost. These values are calculated by the system. These calculated results depend on cost data updates and can change as updates happen. The Bridge cost field for bridges only displays the cost of the bridge (\$1,000). The full bridge cost is displayed, not the per foot cost.

FIELD 41, Drainage Condition

For existing roads only, enter the code that best describes the condition of drainage structures, ditches, dikes, etc., for the section of road being inventoried.

Code	Drainage Condition
0	Unimproved road
1	Severe drainage problems, (roadway pipes, etc., are poor)
2	Drainage problems for short periods during or following storms that are normal to the area.
3	Drainage excellent (roadway pipes good and generally the drainage features are adequate).

FIELD 42, Shoulder Condition

For existing roads only, enter the code that best represents the condition of shoulders for the section of road being inventoried. Enter zero for a road with no shoulders.

Code	Shoulder Condition
0	No shoulders.
1	Shoulder Condition critical, not repairable by normal maintenance procedures, reconstruction eminent for safety of users and protection of traffic lanes.
2	Shoulder condition tolerable with no critical condition apparent.
3	Shoulder condition excellent and adequate as regards regularity, uniformity, width, and uniformity of cross section and usable by drivers if required.

FIELD 43, Number of Railroad Crossings

Enter the actual number of railroad crossings (0-9) encountered in the road section

being inventoried. RIFDS will eventually accept a two-digit number in this field. Until then, enter nine when there are 10 or more railroad crossings in the section.

FIELD 44, Type of Railroad Crossings

Enter the code that best describes the railroad crossings encountered in the road section being inventoried. When two or more codes apply, select the code that is representative of the worst type or condition. If there are no railroad crossings in this section, then leave this field blank.

Code	Type of Railroad Crossing
1	Single track with gates
2	Single track with automatic signals
3	Single track with watchman
4	Single track with cross-bucks
5	Multiple tracks with gate
6	Multiple tracks with automatic gate
7	Multiple tracks with watchman
8	Multiple tracks with cross-bucks
9	Other

FIELD 45, ROW Utility

Enter the numerical code that indicates the type of utility within the ROW or anticipated ROW.

Code	ROW Utility
0	None
1	Underground utility.
2	Surface or above ground utility.
3	Both

FIELD 46, Right-Of-Way Cost

Enter the estimated right of way cost in units of \$1,000/mile.

FIELD 47, Level of Maintenance

Enter the code that represents the maintenance level intended for the road section being inventoried. If further guidance is needed, see *Road Maintenance Manual 58 BIAM 1.3G*.

Code	Level of maintenance
1	Little or none 0 to 9%
2	Occasional 10% to 49%
3	Limited 50% to 89%
4	Optimum 90% to 100%

FIELD 48, Snow and Ice Control

If the road is proposed or not BIA owned (ownership = 1), this field is optional.

When the section is BIA-owned, enter the code that best represents the anticipated general snow conditions and surface bare maintenance operations carried out to combat these conditions on the section of road being inventoried, including Class 3 (streets). The code selected for a given section should be determined objectively based upon the snow conditions generally prevailing on the section.

Using the table below, cross-reference the maintenance category with the description of winter weather severity to determine the snow-ice removal code.

Keep these facts in mind:

The **Surface Bare** maintenance category should be considered for Class 2 or major Class 3 village streets with Type 1 surfacing (Mat or Plant Mix).

The **Center Bare** maintenance category should be considered for Class 2 or major Class 3 village streets with Bituminous Surface Treatments (Prime or Penetration) and for Major Class 4 graveled roads.

The **Snow Packed** maintenance category should be considered for all classes of gravel-surfaced roads with minor traffic. It should also be considered for all earth type surfaced roads, regardless of class, in order to prevent loss of grade or gravel surface material.

Maintenance category or description	Frequent and Heavy Snow (More than 5 storms/season greater than 8 inches snow depth or blizzard conditions normal).	Infrequent and /or medium to Heavy snowfall (Less than 5 storms/season, not generally more than 8 inches snowfall per storm).	Light snows either frequent or infrequent (Generally less than 3 inches snowfall each storm).
Surface Bare	6	5	1
Center Bare	4	3	0
Snow Pack	3	2	0
Special or Emergency only	2	1	0
No Snow and Ice removal	0	0	0

FIELD 49, Beginning and Ending Latitude and Longitude

49a, Begin Latitude

The latitude in degrees of the centerline at the start of the section.

49b, Begin Longitude

The longitude in degrees of the centerline at the start of the section.

49c, New Field, End Latitude

The latitude in degrees of the centerline at the end of the section.

49d, New Field, End Longitude

The longitude in degrees of the centerline at the end of the section.

FIELD 50, Atlas Map No.

Enter number of the atlas map on which all or the predominate part of this section appears or, for proposed roads, would appear. Each set of atlas maps has its own set of sheet numbers. Use the sheet number that appears in the margin in the lower right corner. This field required leading zeros. For example, a sheet shown as SHEET 2 of 7 is entered as "02".

FIELD 51, Maximum Grade Condition (Grade Deficiencies)

For existing roads only, enter the code representing the percent (%) of section length having grades greater than the maximum allowable grade reflected in the assigned adequacy design standard.

Code	Description
1	Over 50% than maximum allowable
2	41-50% than maximum allowable
3	31-40% than maximum allowable
4	21-30% than maximum allowable
5	11-20% than maximum allowable
6	1-10% than maximum allowable
7	None greater than maximum allowable

FIELD 52, P.S.D. Allowable (Sight Deficiencies)

For existing roads only, enter the code representing the percent (by length) of the section being inventoried that meets the passing sight distance requirements set out in the assigned adequacy designed standard. In other words, if L is the length of the section, and P is the length of the section that meets PSD requirements, then calculate $100 \cdot P/L$ and determine the code to report from the following table.

Code	PSD Allowable
0	0-9% of section meets or exceeds requirements
1	10-29% of section meets or exceeds requirements
2	30-49% of section meets or exceeds requirements
3	50-69% of section meets or exceeds requirements
4	70-89% of section meets or exceeds requirements
5	90-100% of section meets or exceeds requirements

FIELD 53, No. Of Curves > Max. Allowable (Curve Deficiencies)

For existing roads only, enter the actual number curves, in the section being inventoried, with a degree of curvature sharper than allowable as set out in the assigned adequacy design standard.

FIELD 54, No. Of Stopping Restrictions (Stopping Deficiencies)

For existing roads only, enter the actual number of instances where stopping sight distances, in the section being inventoried, are less than the minimums allowed under the assigned adequacy design standard.

FIELD 55, Safety Study

For existing roads only, enter the code that represents the described safety deficiencies, or absence thereof, encountered in the road section being inventoried.

Code	Safety Study
0	No unsafe conditions occur.
1	Structure that restricts roadway width (bridges less than 20' long).
2	Bad bridge approach alignment.
3	Unexpected sharp curves.
4	Abrupt or severe grade changes.
5	Blind railroad crossings.
6	Blind intersections.
7	Combination of above.
8	Any other condition.
9	Primitive or unimproved road.

FIELD 56, Road Purpose Code

Enter the code that best represents the purpose of section of road.

Code	Road Purpose Code
A	General (regular roads)
B	Forest-Logging
C	Administrative
D	Fire Controls
E	Recreational-Annual
F	Recreational-seasonal
G	Irrigation-Administrative
H	Irrigation-Field Access
J	Administrative-Compound
K	Administrative-Utility
L	Resource-Gravel
M	Resource-Coal
N	Resource-Oil
P	Resource-Mineral
R	Cemetery
S	Dump Ground
T	Land Use (Ranching or farming)

U	Inter-community
V	HUD Housing Access
W	Others
other	A number of other codes are being employed for special purposes. Do not use any of these other codes with new updates.

FIELD 57, Date of Construction Change

Enter the actual calendar year in which the construction change occurred. Only those construction changes that affect the structural strength of the section or the constructed sub-grade will be considered. A seal coat does not affect the structural strength enough to be considered a construction change. If the actual date is not known and is before 1960, enter 1959. Leave this field blank if the road has never been graded or drained.

FIELD 58, Date of Update, Display Only

This field is misnamed. It contains only the year of update and it is maintained automatically by the system. The computer will set the Date of Update to the fiscal year of the data when an update is approved at the BIA DOT.

FIELD 59, Field Remarks

The remark field can hold up to 2000 characters. It is used for communication between the field, the region, and the BIA DOT. Whenever a section is returned to the region or the field, a remark is entered here. The remark is prepended to whatever contents may already have been in the field, so eventually, old remarks will fall off the end of the field. In other words, this field can be used to hold general field remarks, but after several cycles of update, there is a danger that such remarks will be lost.

FIELD 59, BIADOT Remarks

The remark field can hold up to 2000 characters. It is used for communication between BIADOT and the Region. Whenever a section is returned to the region or the field, a remark is entered here. This field can only be accessed by BIADOT personnel.

Appendix A. BIA Methodology for Rating Wearing Surfaces

There are several nationally acceptable methods of assigning values of 0 to 5 to the surface condition. If the necessary equipment is not available to use one of these methods, then use the method as detailed in the *BIA Maintenance Handbook*. A brief description of this method follows.

There is one method for gravel roads and another method for paved (asphalt) roads. In each case, use the worksheet that matches the pavement for the section being inventoried. **Rate all items on the worksheet,** except possibly "other." See the boxed text if using the "other" item. An item is rated by entering a number from 0.0 to 5.0 that is determined from the Severe, Moderate, and Slight guidelines on the next several pages. After all the items are rated calculate the average. This is the number to be reported as the wearing surface rating.

Both sets have a criterion called "Other" which may be defined as any item that causes a loss of structural ability or riding surface. Examples of such items are drainage structure failures, drainage ditches and sub-grade failure. When using the item "Other," define the factors in determining severity under Remarks, Forms BIA-5806 and BIA-5807 April 1983.

FACTORS USED IN THE GRAVEL RATING

Loss of Gravel—A loss of gravel from the original thickness due primarily to traffic and erosion.

Slight	A loss of less than 20% of the original thickness, but never less than 4-inch remaining.
Moderate	A loss of 20% to 40% of the original thickness, but never less than 3-inch remaining.
Severe	A loss over 40% of the original thickness, but never less than 2-inch remaining

Rutting—An obvious depression in the aggregate surface or sub-grade normally found in the wheel paths parallel to the side of the road.

GRAVEL WORKSHEET	
ITEMS RATED	RATING
LOSS OF GRAVEL	
RUTTING	
CORRUGATIONS	
GRADE DEPRESSION AND UPHEAVAL	
INCLEMENT WEATHER	
OTHER	
AVERAGE	

PAVEMENT WORKSHEET	
ITEMS RATED	RATING
LONGITUDINAL CRACKING	
TRANSVERSE CRACKING	
ALLIGATOR CRACKING	
GRADE DEPRESSION	
RUTTING	
CORRUGATIONS	
RAVELING	
BLEEDING	
PATCHING	
OTHER	
AVERAGE	

Slight	Depression measures less than 1-inch deep.
Moderate	Depression measures more than 1-inch deep but not deep enough to prevent easy steering of a vehicle.
Severe	Depression is deep enough to prevent easy steering of a vehicle.

Corrugations—Ripples is visible in the aggregate surface perpendicular to the direction of traffic.

Slight	Ripples are visible.
Moderate	Ripples create a bumpy ride, but do not require the vehicle to reduce speed.
Severe	Ripples are prevalent enough to require the vehicle to reduce speed.

Grade Depression and Upheaval (Holes and Freeze-Thaw Action)—Depression (holes) in the gravel surface that vary in size and depth, which are created by a loss of surface material or shrinkage of the sub-grade. Upheaval (Freeze-Thaw Action) is the localized upward displacement of the gravel due to the swelling of the sub-grade or some portion of the gravel structure.

Slight	Holes or hump measure 1-inch or less.
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Moderate	Holes or hump measure over 1-inch, but are not enough to prevent easy steering of a vehicle.
Severe	Holes or hump is enough to prevent easy steering of a vehicle.

Incllement Weather—During periods of wet weather a road may become hazardous or impassable due to soil mixed with the gravel surface.

Slight	Road becomes muddy but there is no loss of steering of a vehicle.
Moderate	Road becomes muddy and vehicle must reduce speed to steer safely.
Severe	Road becomes muddy, hazardous and possibly impassable.

FACTORS USED IN THE PAVEMENT RATING

Longitudinal Cracking—Cracks are in the pavement parallel to the direction of traffic.

Slight	Cracks are barely visible.
Moderate	Cracks are more than 1/2-inch wide in some places, but the sides of the cracks are not fully separated.
Severe	Cracks are wide enough that the sides are fully separated.

Transverse Cracking—Cracks are in the pavement perpendicular to the direction of traffic.

Slight	Cracks are barely visible.
Moderate	Cracks are more than 1/4-inch wide in some places, but the sides of the cracks are not fully separated.
Severe	Cracks are wide enough that the sides are fully separated.

Alligator Cracking—Cracks are in the pavement in a pattern similar to an alligator's skin or chicken wire.

Slight	Cracks barely visible.
Moderate	Cracks more than 1/4-inch wide in some places, but the sides of the crack are not fully separated.
Severe	Cracks wide enough that the sides are fully separated, and there may be a loss of pavement.

Grade Depression (Upheaval and Faulting)—Upheaval is the localized upward displacement of a pavement due to swelling of the sub-grade or some portion of the pavement structure. Faulting is a localized low area of limited size, which may or may not be accompanied by cracking.

Slight	Depression and hump measures less than 1/2-inch.
Moderate	Depression and hump measures approximately 1/2 to 1-inch but not enough to prevent easy steering of a vehicle.
Severe	Depression and hump deviation is enough to prevent easy steering of a vehicle.

Rutting—An obvious depression in the pavement normally found in the wheel paths parallel to the side of the road.

Slight	Depression measures less than 1/2-inch deep.
Moderate	Depression measures less than 1/2 to 1-inch deep but not deep enough to prevent easy steering of a vehicle.
Severe	Depression is deep enough to prevent easy steering of a vehicle.

Corrugations—Ripples is visible in the pavement perpendicular to the direction of traffic.

Slight	Ripples are visible.
Moderate	Ripples are visible but do not require the vehicle to reduce speed.
Severe	Ripples are prevalent enough to require the vehicle to reduce speed.

Raveling—A breaking of the surface with visibly loose pieces of aggregate.

Slight	A few pieces of aggregate are visibly dislodged from the pavement surface and are loosely sitting above the road surface.
Moderate	Pieces of loose aggregate are present enough to cover wide areas of the road's surface.
Severe	Pieces of loose aggregate are so prevalent that they cause the road's surface to be rough enough to be noticeable when driving a vehicle over the road.

Bleeding—Bleeding is the upward movement of asphalt in the asphalt pavement resulting

in the information of a film of asphalt covering the surface aggregates?

Slight	Liquid asphalt is barely noticeable in its covering of the aggregates.
Moderate	Asphalt is covering large areas of the aggregate and is sticky in hot weather.
Severe	Liquid asphalt is totally covering the aggregate and tire tracks can be seen in the asphalt surface during hot weather.

Surface Deterioration (Patching)—Potholes, utility cuts, or other major failures in the road surface, which have been repaired.

Slight	Patch is level with the pavement and shows no sign of deterioration.
Moderate	Patch is somewhat deteriorated but not enough to require a vehicle to reduce speed.
Severe	Patch is deteriorated enough to reduce a vehicle's speed or a new pothole that has not been repaired.

TABLE 1 - ADEQUATE STANDARD CHARACTERISTICS

The cost to construct of a particular transportation facility is defined as the cost required to improve the transportation facility from its existing condition to a condition that would meet the Adequate Standard Characteristics. Table 1 presents the Adequate Standard Characteristics.

ADEQUATE STANDARD NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
TERRAIN**	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)(2)(3)	(1)	(2)	(3)	(1)	(2)	(3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
FUTURE ADT used in ADS assignment	N/A	FADT>=400	FADT<400																				
BIA CLASS	1	2								4			5			6	7	3*	8	9	10	11	
	MAJOR ARTERIAL	RURAL MINOR ARTERIALS								RURAL MAJOR COLLECTOR		RURAL LOCAL			CITY MINOR ARTERIAL		CITY COLLECTOR	CITY LOCAL	MOTORIZED/ NON-MOTORIZED TRAILS	OTHER TRANSPORTATION FACILITIES	AIRSTRIPS	Overlapping Routes	
CALCULATED VALUES																							
FUTURE SURFACE TYPE (EXISTING)	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-400 - GRAVEL FADT OVER 400 - PAVED	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74				
FUTURE SURFACE TYPE (PROPOSED)	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-400 - GRAVEL FADT OVER 400 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 -EARTH FADT 50-400 - GRAVEL FADT OVER 400 - PAVED	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149				
DEFAULT CURRENT ADT /DEFAULT FUTURE ADT**	must exist	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 100 FADT 149	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74				
RECOMMENDED DESIGN																							
MINIMUM ROADWAY WIDTH (INCLUDING SHOULDERS)	66'	36'	32'	32'	32'	32'	32'	32'	32'	32'	32'	32'	28'	28'	28'	28'	28'	28'	28'	28'	28'	28'	28'
SHOULDER WIDTH	6' MINIMUM	6'	4'	4'	4'	4'	4'	4'	4'	4'	4'	4'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'
SHOULDER TYPE	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH	PAVED/GRAVEL/EARTH

* Local Class 3 roads may be earth, gravel or paved, depending on tribal customs, economics, or environmental considerations.
 ** Use default future ADT for proposed roads or where impractical to acquire ADT or ADT does not exist. (See Table 2 Default ADT and Default Future ADT). Where current ADT is practical to acquire, it should be acquired and projected to a future ADT at 2 per cent per year for 20 years.
 *** (1)=Flat, (2)=Rolling, (3)=Mountainous

Appendix C Future Surface Type Calculation.

TABLE 3.—FUTURE SURFACE TYPE

Const. need	IRR class No.	Future ADT	Future surface type
0,1,2,3	1	Any	Paved
0,1,2,3	2	Any	Paved
0,1,2,3	3,6,7	< 50	Earth
		50–250 ...	Gravel
		> 250	Paved
0,1,2,3	4,5	< 50	Earth
		50–250 ...	Gravel
		> 250	Paved
0,1,2,3,4	8	N/A	N/A*
0,1,2,3,4	9	N/A	N/A**
0,1,2,3,4	10	N/A	N/A***
4***	1	N/A****	N/A****
4	2	ANY	Paved
4	3,6,7	< 50	Earth
		50–250 ...	Gravel
		> 250	Paved
4	4	< 50	Earth
		50–250 ...	Gravel
		> 250	Paved
4	5	< 50	Earth
		50–250 ...	Gravel
		> 250	Paved

*Class 8 does not have a future surface type. Per mile costs are applied independent of future surface type.

**Class 9 does not have a future surface type. Costs are independent of future surface type.

***Class 10 does not have a future surface type. These are airstrips and is used for identification purposed only.

**** Class 1 with Construction Need of 4 does not apply. Class 1 roads must exist.

Appendix D Required, Optional, Derived and Forbidden Fields

	Class	1,2,4,5		3,6,7		8,9		10	Bridges		11
		0,1,2,3	4	0,1,2,3	4	0,1,2,3	4	All	0,1,2,3	4	All
1-3	Region, Agency, Reservation	R	R	R	R	R	R	R	R	R	R
4	Route Number	R	R	R	R	R	R	R	R	R	R
5	Section Number	R	R	R	R	R	R	R	R	R	R
6	Class	R	R	R	R	R	R	R	R	R	R
7	Length	R	R	R	R	R	R	R	F	F	R
8	Bridge Number	F	F	F	F	F	F	F	R	R	F
9	Bridge Condition	F	F	F	F	F	F	F	R	R	F
10	Bridge Length	F	F	F	F	F	F	F	R	R	F
11	County	R	R	R	R	R	R	R	R	R	F
12	Congressional District	R	R	R	R	R	R	R	R	R	F
13	State	R	R	R	R	R	R	R	R	R	F
14	Ownership	R	R	R	R	R	R	R	R	R	F
15	Construction Need	R	R	R	R	R	R	R	R	R	F
16	Terrain	R	R	F	F	F	F	F	F	F	F
17	Foundation/Roadbed Condition	R	R	R	R	F	F	F	F	F	F
18	Wearing Surface Condition/SCI	R	R	R	R	F	F	F	F	F	F
19	Surface Width	R	R	R	R	R	R	O	F	F	F
20	Surface Type	R	R	R	R	R	R	O	F	F	F
21	Federal Aid Category	R	R	R	R	R	R	F	F	F	F
22	ROW Status Code	R	R	R	R	R	R	F	F	F	F
23	ROW Width	R	R	R	R	R	R	F	F	F	F
24	CTC Percent Eligible	C1	C1	C1	C1	C1	C1	F	C1	C1	F
25	% Incidental Cost	C2	C2	C2	C2	C2	C2	F	F	F	F
26	Shoulder Width	R	R	R	R	F	F	F	F	F	F
27	Shoulder Type	C3	C3	C3	C3	F	F	F	F	F	F
28	ADT	C4	C4	C4	C4	C4	C4	F	F	F	F
29	ADT Year	C5	C5	C5	C5	C5	C5	F	F	F	F
30	% Trucks	C6	C6	C6	C6	F	F	F	F	F	F
31	Owner Number	C7	C7	C7	C7	C7	F	F	F	F	F
32	Roadway Width	D	D	D	D	D	D	D	F	F	F
33	ADT EST Year + 20 (FADT)	D	D	D	D	D	D	F	F	F	F
34	Adequate Design Standard ADS	D	D	D	D	D	D	D	F	F	F
35	Future Surface Type	D	D	D	D	F	F	F	F	F	F
36-40	Five Adj. Construction Costs	D	D	D	D	D	D	D	F	F	F
41	Drainage Condition	O	F	O	F	O	F	F	F	F	F
42	Shoulder Condition	O	F	O	F	O	F	F	F	F	F
43	# RR Xing	O	F	O	F	O	F	F	F	F	F
44	RR Xing Type	C8	F	C8	F	C8	F	F	F	F	F
45	ROW Utility Code	O	F	O	F	O	F	F	F	F	F
46	ROW Cost	O	F	O	F	O	F	F	F	F	F
47	Level of Maintenance	O	F	O	F	O	F	F	F	F	F
48	Snow and Ice Control	O	F	O	F	O	F	F	F	F	F
49	Beg and End Lat & Long	O	O	O	O	O	O	O	O	O	F
50	Atlas Map Number	O	O	O	O	O	O	O	O	O	O
51	Grade Deficiencies	O	F	O	F	O	F	F	F	F	F
52	Sight Deficiencies	O	F	O	F	O	F	F	F	F	F
53	Curve Deficiencies	O	F	O	F	O	F	F	F	F	F
54	Stopping Deficiencies	O	F	O	F	O	F	F	F	F	F
55	Safety Study	O	F	O	F	O	F	F	F	F	F
56	Road Purpose Code	O	F	O	F	O	F	F	F	F	F
57	Date of Construction Change	R	F	R	F	R	F	F	F	F	F
58	Date of Update	D	D	D	D	D	D	D	D	D	D
59	Field Remarks	O	O	O	O	O	O	O	O	O	O
60	BIADOT Remarks (BIADOT USE ONLY)	F	F	F	F	F	F	F	F	F	F

Optional fields are maintained by the field and reviewed by the Regions for applicability and correctness. It is the responsibility of the Regions to maintain these fields for management purposes. Updates to these fields will be saved to the database at the field level and do not require submission and subsequent approval by BIADOT.

- C1 Defaults will be assigned. If a value other than the default is required then the update will require the statement of Inability to Provide Funding attachment.
- C2 The Default of zero will be assigned. If a value greater than zero is entered then the update will require the Incidental Cost Verification attachment.
- C3 Required if shoulder width is greater than zero.
- C4 Required if update requires other than default value, forbidden for class 9.
- C5 Required if ADT is greater than zero and is not the default.
- C6 Required if ADT is greater than zero and is not the default.
- C7 Required if owner is other than BIA
- C8 Required if # of RR Xing is greater than zero.

	REQUIRED
	FORBIDDEN
	OPTIONAL
	DERIVED
	CONDITIONALLY REQUIRED